

What is claimed is:

1 1. A method of performing parallel data operations upon data in a
2 database, comprising:
3 receiving a data transaction request in a client system; and
4 executing a plurality of multi-phase parallel tasks in response to the
5 request to perform the data operations upon the data in the database.

1 2. The method of claim 1, wherein receiving a data transaction
2 request comprises receiving a request for loading data into the database.

1 3. The method of claim 1, wherein receiving a data transaction
2 request comprises receiving a request to perform a data transformation
3 operation upon the data in the database.

1 4. The method of claim 3, wherein receiving a request to perform the
2 data transformation operation comprises receiving a request to perform one of a
3 data selection operation, a data validation operation, a data cleansing operation,
4 and a data query operation.

1 5. The method of claim 1, wherein executing the multi-phase parallel
2 tasks comprises executing each of the parallel tasks in one or more phases.

1 6. The method of claim 5, comprising executing a first parallel task in
2 a first number of phases and a second parallel task in a second number of
3 phases.

1 7. The method of claim 5, further comprising each parallel task
2 providing a code to indicate if the task is to be re-invoked in the next phase

1 8. The method of claim 7, wherein providing the code comprises
2 providing the code to a task coordinator.

1 9. The method of claim 8, wherein the code comprises a first code to
2 indicate that the task coordinator is to invoke a component in the next phase.

1 10. The method of claim 8, wherein the code comprises a second code
2 to indicate that the task is not to invoke a component in the next phase.

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1 11. The method of claim 1, further comprising:
2 analyzing the transaction request;
3 creating a task plan in response to the transaction request;
4 implementing the task plan in a multi-phase organization;
5 executing a plurality of tasks in parallel, in response to the launching
6 of the task coordinator function;
7 determining whether an additional phase is required in order
8 to execute the task; and
9 scheduling an additional phase in response to the determination
10 that an additional phase is required.

1 12. The method of claim 11, wherein implementing the task plan
2 comprises creating a job script.

1 13. The method of claim 11, wherein implementing the task plan
2 comprises:
3 translating the task plan;
4 selecting a plurality of components to implement the translated
5 task plan;
6 assigning a plurality of processes corresponding to the
7 components; and

8 creating a communications channel to allow for communications
9 between the processes.

1 14. The method of claim 13, wherein selecting the plurality of
2 components to implement the translated task plan comprises selecting the
3 plurality of components to perform at least one of a data extraction operation, a
4 data transformation operation, and a data loading operation.

- 1 15. An apparatus, comprising:
 - 2 a user interface;
 - 3 a processor coupled with the user interface, wherein the processor
 - 4 receives a data transaction request from the user interface; and
 - 5 a controller coupled with the processor, wherein the controller
 - 6 performs a number of tasks in parallel based upon instructions received from the
 - 7 processor, each task performed in a plurality of phases.

1 16. The apparatus of claim 15, wherein the processor generates a task
2 plan in response to the data transaction request.

1 17. The apparatus of claim 16, wherein the controller comprises a task
2 coordinator to execute the task plan.

1 18. The apparatus of claim 16, wherein the controller further comprises
2 a plurality of components to implement the task plan in parallel.

1 19. The apparatus of claim 18, further comprising a communications
2 interface for enabling communications between the components.

1 20. The apparatus of claim 18, wherein the controller further comprises
2 a storage unit for storing methods and functions to execute the task plan.

1 21. The apparatus of claim 15, wherein the a controller coupled with
2 the processor, wherein the controller performs a number of tasks in parallel
3 based upon instructions received from the processor, each task performed in a
4 plurality of phases further comprises the controller performing the tasks in a
5 sequence of multiple process steps.

1 22. A system, comprising:
2 a database system; and
3 a client system to implement a plurality of data operations upon the
4 database in parallel.

1 23. The system of claim 22, wherein the database system is a relational
2 database system.

1 24. The system of claim 23, wherein the database system is a parallel
2 database system.

1 25. The system of claim 22, wherein client system comprises:
2 a processor to receive a data transaction request;
3 a plurality of operators to perform parallel data operations in
4 response to the data transaction request;
5 an operator interface coupled to the operators, wherein the
6 operator interface allows communications between the operators.

1 26. The system of claim 22, wherein the processor performs data
2 parsing and data compiling upon the data in the database system.

1 27. The system of claim 22, wherein the operators perform at least one
2 of a data extraction function, a data transform function, and a data loading
3 function.

1 28. An article comprising at least one storage medium containing
2 instructions that when executed cause a client system to:
3 receive a data transaction request; and
4 execute a plurality of parallel tasks in response to the request to
5 perform data operations upon the data in the database over a network
6 connection.

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P8* 1 29. The article of claim 28, wherein the instructions when executed
2 cause the client system to execute each of the parallel tasks in one or more
3 phases.

1 30. The article of claim 29, wherein the instructions when executed
2 cause the client system to execute a first parallel task in a first number of phases
3 and a second parallel task in a second number of phases.

1 31. The article of claim 29, wherein the instructions when executed
2 cause each parallel task to provide a code to indicate if the task is to be re-
3 invoked in the next phase.

1 32. The article of claim 31, wherein the instructions when executed
2 cause the parallel task to provide the code to a task coordinator.

1 33. The article of claim 32, wherein the code comprises a first code to
2 indicate that the task coordinator is to invoke a component in the next phase.

1 34. The article of claim 32, wherein the code comprises a second code
2 to indicate that the task is not to invoke the component in the next phase.

1 35. A method of performing parallel data operations upon data in a
2 database, comprising:
3 receiving a data transaction request; and

4 executing a plurality of synchronized multi-phase parallel tasks in
5 response to the request to perform the data operations upon the data in the
6 database.

1 36. The method of claim 35, wherein executing the multi-phase parallel
2 tasks comprises executing each of the parallel tasks in one or more phases.

37. The method of claim 36, comprising executing a first parallel task in a first number of phases and a second parallel task in a second number of phases.

1 38. The method of claim 36, further comprising each parallel task
2 providing a code to indicate if the task is to be re-invoked in the next phase.

1 39. The method of claim 38, wherein providing the code comprises
2 providing the code to a task coordinator.

1 40. The method of claim 39, wherein the code comprises a first code to
2 indicate that the task coordinator is to invoke a component in the next phase.

1 41. The method of claim 39, wherein the code comprises a second
2 code to indicate that the task is not to invoke a component in the next phase.

1 42. The method of claim 39, wherein the code synchronizes the
2 operation of one or more component.